

**PROCEDURES FOR TEE VERIFICATION OF THE LOS  
ANGELES ABRASION MACHINE  
AASHTO T 96**

**A. PURPOSE**

These methods are intended to provide instruction for the verification of critical dimensions and RPM of the L.A. Abrasion Machine and to determine the mass of the spheres used as test charges.

**B. APPARATUS REQUIRED**

1. Steel ruler readable to 0.1 inch (2.50 mm)
2. Stopwatch readable to 0.1 second
3. Calibrated balance with 5,000 gram capacity and readable to 1.0 gram
4. Calibrated caliper or micrometer readable to 0.001 inch (.025 mm)

**C. PROCEDURE**

L.A. Abrasion Machine

1. Measure inside diameter of drum at the left and right inside edges to 0.1 inch and record.
2. Measure the width and height of cylinder opening to the nearest 0.1 inch and record.
3. Measure the wall thickness at left and right edges to nearest 0.1 inch and record.
4. Determine if cylinder is horizontal using a steel ball to check left to right roll.
5. Measure the shelf width inside the drum to the nearest 0.1 inch and record.
6. Measure the distance from the shelf to the opening in the cylinder in the direction of rotation and record.
7. Determine the RPM to the nearest whole number over a five minute period with a stopwatch and record.
8. Look at counter on machine to insure that the number of revolutions is  $500 \pm 1$  when machine cuts off.

Steel Balls

1. Weigh each individual steel ball to the nearest 1.0 gram and record.
2. Obtain total weight of charge to the nearest 1.0 gram and record.
3. Measure the diameter of each steel sphere to the nearest 0.001inch and record.

**D. TOLERANCE**

Critical dimensions of the L.A. Abrasion Machine shall meet the requirements specified in AASHTO Test Method T 96. Critical dimensions and weights of steel ball charges shall meet the requirements specified in AASHTO Test Method T 96. The L.A. Abrasion Machine will be in good operating condition.

## EQUIPMENT VERIFICATION RECORD

Verified By: _____	Date: _____
Equipment: <u>L.A. Abrasion Machine and Test Charge (spheres)</u>	Location (Lab): _____
Identification No.: _____	Verification Frequency: <u>12 months</u>
Previous Verification Date: _____	Next Due Date: _____
Verification Equipment Used: Steel tape (five ft. [2 m] min., readable to 0.1 in. [2 mm]), ID No.: _____	
Stop watch (readable to 0.1 sec.), ID No.: _____	Calibrated caliper (readable to 0.001 in. [ .025 mm]), SN: _____
5500 g min.), SN: _____	Calibrated balance (readable to 1.0 g, with a capacity of _____)
Verification Procedure: <u>(In-house) OMR-CVP-17 / AASHTO T 96</u>	

Note: Inside diameter, length, wall thickness, shelf, opening inside and distance from shelf to opening are measured using a steel ruler capable of being read to the nearest 0.10 in. All measurements are taken at two (2) different locations.

Inside Diameter (acceptable 27.8 in. – 28.2 in. [706 – 716 mm]) \_\_\_\_\_

Inside width (acceptable 19.8 in. – 20.2 in. [503 – 513 mm]) \_\_\_\_\_

Wall thickness (acceptable approximately .375 - .625 in. [9.5 – 15.86 mm]) \_\_\_\_\_

Opening inside about 20 in. (508 mm) by 6 in. (152 mm) door \_\_\_\_\_

Shelf width (acceptable 3.4 in. – 3.6 in. [87 – 91 mm] steel plate \_\_\_\_\_

Distance from shelf to opening is 50.0 in. (1.27 m) or more in the direction of rotation. \_\_\_\_\_

NOTE: Check rotation speed of cylinder as follows:

1-Set counter to zero or take an initial reading of counter. \_\_\_\_\_

2-Turn L.A. Abrasion Machine ON and allow to run for five (5) minutes \_\_\_\_\_

3-Confirm L.A. Abrasion Machine is OFF. \_\_\_\_\_

4-Record the elapsed time in seconds. \_\_\_\_\_

5-Record the number of revolutions. \_\_\_\_\_

6-The average speed = 60 X Revolutions / Time in seconds. \_\_\_\_\_

Cylinder rotation speed (acceptable 30-33 RPM over a five minute period). \_\_\_\_\_

### CHECKLIST OF STEEL SPHERES

### WEIGHT OF CHARGE

Average approximate diameter				Weight				Grading wt.
1.84 in. (46.84 mm)				390 g to 455 g				
								A-4,975 g – 5,025 g
								B-4,559 g – 4,609 g
								C-3,310 g – 3,350 g
								D-2,485 g – 2,515 g